




Company: Carrizo Oil & Gas  
 Site: Slick Rock  
 Well: 17-11-7-60  
 Project: Weld County, Colorado (NAD83)  
 Rig Name: Xtreme 19



Planning: 936.442.2510 Fax: 936.442.2515  
 Operations: 936.442.2500 Fax: 936.442.2599



Azimuths to Grid North  
 True North: -0.89°  
 Magnetic North: 7.64°

Magnetic Field  
 Strength: 53308.7snT  
 Dip Angle: 67.30°  
 Date: 05/26/2011  
 Model: WMM\_2010

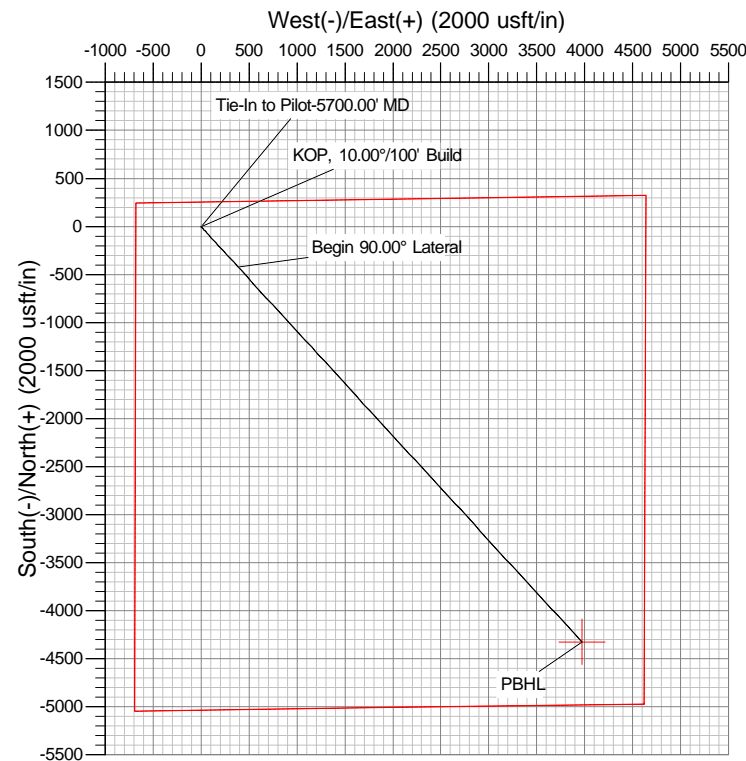
US State Plane 1983  
 Colorado Northern Zone

Created By: Cindy Darland  
 Date: 14:47, June 14 2011  
 Plan: Design #1

PILOT ANNOTATIONS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation	
6994.00	0.00	0.00	6994.00	0.00	0.00	0.00	0.00	Pilot PBHL-6994.00' MD	

ANNOTATIONS									
MD	Inc	Azi	TVD	+N/-S	+E/-W	VSect	Departure	Annotation	
5700.00	0.00	0.00	5700.00	0.00	0.00	0.00	0.00	Tie-In to Pilot-5700.00' MD	
5770.04	0.00	0.00	5770.04	0.00	0.00	0.00	0.00	KOP, 10.00°/100' Build	
6670.04	90.00	137.42	6343.00	-421.90	387.66	572.96	572.96	Begin 90.00° Lateral	
11971.58	90.00	137.42	6343.00	-4325.72	3974.65	5874.50	5874.50	PBHL	



The customer should only rely on this document after independently verifying all paths, targets, coordinates, lease and hard lines represented. Any decisions made or wells drilled utilizing this or any other information supplied by MS Energy are at the sole risk and responsibility of the customer. MS Energy is not responsible for the accuracy of this schematic or the information contained herein.



## **Carrizo Oil & Gas**

**Weld County, Colorado (NAD83)**

**Slick Rock**

**17-11-7-60**

**Wellbore #1**

**Plan: Design #1**

## **Standard Planning Report**

**14 June, 2011**

<b>Database:</b>	Southern Region	<b>Local Co-ordinate Reference:</b>	Well 17-11-7-60
<b>Company:</b>	Carrizo Oil & Gas	<b>TVD Reference:</b>	WELL @ 4942.80usft (Xtreme 19)
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>MD Reference:</b>	WELL @ 4942.80usft (Xtreme 19)
<b>Site:</b>	Slick Rock	<b>North Reference:</b>	Grid
<b>Well:</b>	17-11-7-60	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

<b>Project</b>	Weld County, Colorado (NAD83)		
<b>Map System:</b>	US State Plane 1983	<b>System Datum:</b>	Mean Sea Level
<b>Geo Datum:</b>	North American Datum 1983		
<b>Map Zone:</b>	Colorado Northern Zone		

<b>Well</b>	17-11-7-60			
<b>Well Position</b>	<b>+N/-S</b>	1,457,731.78 usft	<b>Northing:</b>	1,457,731.78 usft
	<b>+E/-W</b>	3,382,083.45 usft	<b>Easting:</b>	3,382,083.45 usft
<b>Position Uncertainty</b>		0.00 usft	<b>Wellhead Elevation:</b>	<b>Latitude:</b> 40° 34' 54.2534 N
				<b>Longitude:</b> 104° 7' 27.749 W
				<b>Ground Level:</b> 4,927.80 usft

<b>Wellbore</b>	Wellbore #1				
<b>Magnetics</b>	<b>Model Name</b>	<b>Sample Date</b>	<b>Declination (°)</b>	<b>Dip Angle (°)</b>	<b>Field Strength (nT)</b>
	WMM_2010	05/26/2011	8.53	67.30	53,309

<b>Design</b>	Design #1			
<b>Audit Notes:</b>				
<b>Version:</b>	<b>Phase:</b>	PROTOTYPE	<b>Tie On Depth:</b>	5,700.00
<b>Vertical Section:</b>	<b>Depth From (TVD) (usft)</b>	<b>+N/-S (usft)</b>	<b>+E/-W (usft)</b>	<b>Direction (°)</b>
	0.00	0.00	0.00	137.42

<b>Plan Sections</b>										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	TFO (°)	Target
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00	
5,770.04	0.00	0.00	5,770.04	0.00	0.00	0.00	0.00	0.00	0.00	
6,670.04	90.00	137.42	6,343.00	-421.90	387.66	10.00	10.00	0.00	137.42	
11,971.58	90.00	137.42	6,343.00	-4,325.72	3,974.65	0.00	0.00	0.00	0.00	PBHL v1 - Slick Rock

<b>Database:</b>	Southern Region	<b>Local Co-ordinate Reference:</b>	Well 17-11-7-60
<b>Company:</b>	Carrizo Oil & Gas	<b>TVD Reference:</b>	WELL @ 4942.80usft (Xtreme 19)
<b>Project:</b>	Weld County, Colorado (NAD83)	<b>MD Reference:</b>	WELL @ 4942.80usft (Xtreme 19)
<b>Site:</b>	Slick Rock	<b>North Reference:</b>	Grid
<b>Well:</b>	17-11-7-60	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

Planned Survey									
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)
5,700.00	0.00	0.00	5,700.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Tie-In to Pilot-5700.00' MD</b>									
5,770.04	0.00	0.00	5,770.04	0.00	0.00	0.00	0.00	0.00	0.00
<b>KOP, 10.00°/100' Build</b>									
5,800.00	3.00	137.42	5,799.99	-0.58	0.53	0.78	10.00	10.00	0.00
5,850.00	8.00	137.42	5,849.74	-4.10	3.77	5.57	10.00	10.00	0.00
5,900.00	13.00	137.42	5,898.89	-10.81	9.93	14.68	10.00	10.00	0.00
5,950.00	18.00	137.42	5,947.06	-20.64	18.96	28.03	10.00	10.00	0.00
6,000.00	23.00	137.42	5,993.88	-33.53	30.81	45.53	10.00	10.00	0.00
6,050.00	28.00	137.42	6,038.99	-49.37	45.36	67.05	10.00	10.00	0.00
6,100.00	33.00	137.42	6,082.06	-68.05	62.53	92.41	10.00	10.00	0.00
6,150.00	38.00	137.42	6,122.76	-89.42	82.16	121.43	10.00	10.00	0.00
6,200.00	43.00	137.42	6,160.77	-113.32	104.12	153.89	10.00	10.00	0.00
6,250.00	48.00	137.42	6,195.80	-139.57	128.24	189.54	10.00	10.00	0.00
6,300.00	53.00	137.42	6,227.60	-167.97	154.34	228.11	10.00	10.00	0.00
6,350.00	58.00	137.42	6,255.92	-198.30	182.21	269.30	10.00	10.00	0.00
6,400.00	63.00	137.42	6,280.53	-230.33	211.64	312.80	10.00	10.00	0.00
6,450.00	68.00	137.42	6,301.26	-263.83	242.41	358.28	10.00	10.00	0.00
6,500.00	73.00	137.42	6,317.95	-298.52	274.29	405.40	10.00	10.00	0.00
6,550.00	78.00	137.42	6,330.47	-334.15	307.03	453.79	10.00	10.00	0.00
6,600.00	83.00	137.42	6,338.72	-370.45	340.39	503.09	10.00	10.00	0.00
6,650.00	88.00	137.42	6,342.65	-407.15	374.10	552.92	10.00	10.00	0.00
6,670.04	90.00	137.42	6,343.00	-421.90	387.66	572.96	10.00	10.00	0.00
<b>Begin 90.00° Lateral</b>									
6,700.00	90.00	137.42	6,343.00	-443.96	407.93	602.92	0.00	0.00	0.00
6,800.00	90.00	137.42	6,343.00	-517.60	475.59	702.92	0.00	0.00	0.00
6,900.00	90.00	137.42	6,343.00	-591.23	543.25	802.92	0.00	0.00	0.00
7,000.00	90.00	137.42	6,343.00	-664.87	610.91	902.92	0.00	0.00	0.00
7,100.00	90.00	137.42	6,343.00	-738.50	678.57	1,002.92	0.00	0.00	0.00
7,200.00	90.00	137.42	6,343.00	-812.14	746.23	1,102.92	0.00	0.00	0.00
7,300.00	90.00	137.42	6,343.00	-885.77	813.89	1,202.92	0.00	0.00	0.00
7,400.00	90.00	137.42	6,343.00	-959.41	881.55	1,302.92	0.00	0.00	0.00
7,500.00	90.00	137.42	6,343.00	-1,033.05	949.20	1,402.92	0.00	0.00	0.00
7,600.00	90.00	137.42	6,343.00	-1,106.68	1,016.86	1,502.92	0.00	0.00	0.00
7,700.00	90.00	137.42	6,343.00	-1,180.32	1,084.52	1,602.92	0.00	0.00	0.00
7,800.00	90.00	137.42	6,343.00	-1,253.95	1,152.18	1,702.92	0.00	0.00	0.00
7,900.00	90.00	137.42	6,343.00	-1,327.59	1,219.84	1,802.92	0.00	0.00	0.00
8,000.00	90.00	137.42	6,343.00	-1,401.22	1,287.50	1,902.92	0.00	0.00	0.00
8,100.00	90.00	137.42	6,343.00	-1,474.86	1,355.16	2,002.92	0.00	0.00	0.00
8,200.00	90.00	137.42	6,343.00	-1,548.49	1,422.82	2,102.92	0.00	0.00	0.00
8,300.00	90.00	137.42	6,343.00	-1,622.13	1,490.48	2,202.92	0.00	0.00	0.00
8,400.00	90.00	137.42	6,343.00	-1,695.77	1,558.14	2,302.92	0.00	0.00	0.00
8,500.00	90.00	137.42	6,343.00	-1,769.40	1,625.80	2,402.92	0.00	0.00	0.00
8,600.00	90.00	137.42	6,343.00	-1,843.04	1,693.46	2,502.92	0.00	0.00	0.00
8,700.00	90.00	137.42	6,343.00	-1,916.67	1,761.12	2,602.92	0.00	0.00	0.00
8,800.00	90.00	137.42	6,343.00	-1,990.31	1,828.78	2,702.92	0.00	0.00	0.00
8,900.00	90.00	137.42	6,343.00	-2,063.94	1,896.44	2,802.92	0.00	0.00	0.00
9,000.00	90.00	137.42	6,343.00	-2,137.58	1,964.10	2,902.92	0.00	0.00	0.00
9,100.00	90.00	137.42	6,343.00	-2,211.21	2,031.76	3,002.92	0.00	0.00	0.00
9,200.00	90.00	137.42	6,343.00	-2,284.85	2,099.41	3,102.92	0.00	0.00	0.00
9,300.00	90.00	137.42	6,343.00	-2,358.49	2,167.07	3,202.92	0.00	0.00	0.00
9,400.00	90.00	137.42	6,343.00	-2,432.12	2,234.73	3,302.92	0.00	0.00	0.00
9,500.00	90.00	137.42	6,343.00	-2,505.76	2,302.39	3,402.92	0.00	0.00	0.00

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<b>Project:</b>	Weld County, Colorado (NAD83)	<b>MD Reference:</b>	WELL @ 4942.80usft (Xtreme 19)
<b>Site:</b>	Slick Rock	<b>North Reference:</b>	Grid
<b>Well:</b>	17-11-7-60	<b>Survey Calculation Method:</b>	Minimum Curvature
<b>Wellbore:</b>	Wellbore #1		
<b>Design:</b>	Design #1		

Planned Survey										
Measured Depth (usft)	Inclination (°)	Azimuth (°)	Vertical Depth (usft)	+N/-S (usft)	+E/-W (usft)	Vertical Section (usft)	Dogleg Rate (°/100usft)	Build Rate (°/100usft)	Turn Rate (°/100usft)	
9,600.00	90.00	137.42	6,343.00	-2,579.39	2,370.05	3,502.92	0.00	0.00	0.00	
9,700.00	90.00	137.42	6,343.00	-2,653.03	2,437.71	3,602.92	0.00	0.00	0.00	
9,800.00	90.00	137.42	6,343.00	-2,726.66	2,505.37	3,702.92	0.00	0.00	0.00	
9,900.00	90.00	137.42	6,343.00	-2,800.30	2,573.03	3,802.92	0.00	0.00	0.00	
10,000.00	90.00	137.42	6,343.00	-2,873.94	2,640.69	3,902.92	0.00	0.00	0.00	
10,100.00	90.00	137.42	6,343.00	-2,947.57	2,708.35	4,002.92	0.00	0.00	0.00	
10,200.00	90.00	137.42	6,343.00	-3,021.21	2,776.01	4,102.92	0.00	0.00	0.00	
10,300.00	90.00	137.42	6,343.00	-3,094.84	2,843.67	4,202.92	0.00	0.00	0.00	
10,400.00	90.00	137.42	6,343.00	-3,168.48	2,911.33	4,302.92	0.00	0.00	0.00	
10,500.00	90.00	137.42	6,343.00	-3,242.11	2,978.99	4,402.92	0.00	0.00	0.00	
10,600.00	90.00	137.42	6,343.00	-3,315.75	3,046.65	4,502.92	0.00	0.00	0.00	
10,700.00	90.00	137.42	6,343.00	-3,389.38	3,114.31	4,602.92	0.00	0.00	0.00	
10,800.00	90.00	137.42	6,343.00	-3,463.02	3,181.97	4,702.92	0.00	0.00	0.00	
10,900.00	90.00	137.42	6,343.00	-3,536.66	3,249.63	4,802.92	0.00	0.00	0.00	
11,000.00	90.00	137.42	6,343.00	-3,610.29	3,317.28	4,902.92	0.00	0.00	0.00	
11,100.00	90.00	137.42	6,343.00	-3,683.93	3,384.94	5,002.92	0.00	0.00	0.00	
11,200.00	90.00	137.42	6,343.00	-3,757.56	3,452.60	5,102.92	0.00	0.00	0.00	
11,300.00	90.00	137.42	6,343.00	-3,831.20	3,520.26	5,202.92	0.00	0.00	0.00	
11,400.00	90.00	137.42	6,343.00	-3,904.83	3,587.92	5,302.92	0.00	0.00	0.00	
11,500.00	90.00	137.42	6,343.00	-3,978.47	3,655.58	5,402.92	0.00	0.00	0.00	
11,600.00	90.00	137.42	6,343.00	-4,052.11	3,723.24	5,502.92	0.00	0.00	0.00	
11,700.00	90.00	137.42	6,343.00	-4,125.74	3,790.90	5,602.92	0.00	0.00	0.00	
11,800.00	90.00	137.42	6,343.00	-4,199.38	3,858.56	5,702.92	0.00	0.00	0.00	
11,900.00	90.00	137.42	6,343.00	-4,273.01	3,926.22	5,802.92	0.00	0.00	0.00	
11,971.58	90.00	137.42	6,343.00	-4,325.72	3,974.65	5,874.50	0.00	0.00	0.00	

Design Targets									
Target Name	Dip Angle (°)	Dip Dir. (°)	TVD (usft)	+N/-S (usft)	+E/-W (usft)	Northing (usft)	Easting (usft)	Latitude	Longitude
PBHL v1 - Slick Rock 17	0.00	0.00	6,343.00	-4,325.72	3,974.65	1,453,406.06	3,386,058.10	40° 34' 10.9010 N	104° 6' 37.120 W
- hit/miss target									
- Shape									
- plan hits target center									
- Point									

Plan Annotations				
Measured Depth (usft)	Vertical Depth (usft)	Local Coordinates		Comment
		+N/-S (usft)	+E/-W (usft)	
5,700.00	5,700.00	0.00	0.00	Tie-In to Pilot-5700.00' MD
5,770.04	5,770.04	0.00	0.00	KOP, 10.00°/100' Build
6,670.04	6,343.00	-357.68	-447.60	Begin 90.00° Lateral
11,971.58	6,343.00	-3,667.32	-4,589.17	PBHL